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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,931	02/27/2004	Roy Greeff	303.881US1	6807
21186	7590	04/14/2006		EXAMINER
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH			LEE, BENNY T	
121 S. 8TH STREET			ART UNIT	PAPER NUMBER
SUITE 1600				
MINNEAPOLIS, MN 55402			2817	

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

8) ✓

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/789,931	GREEFF, ROY
Examiner	Art Unit	
Benny Lee	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 03 February 2006.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-4, 6-9, 11-15, 17, 18, 20-28, 30-32 and 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4, 6; 7-9, 11, 12; 13-15, 17; 18, 20-22; 23-28; 30-32, 34 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 03 February 2006 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input type="checkbox"/> Notice of References Cited (PTO-892).	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

The disclosure is objected to because of the following informalities: In the replacement subheading to page 3, line 19, note that the subheading “Summary” should be rephrased as -- Summary of the Invention-- for a proper characterization. Page 4, line 1, in the subheading --of the Invention-- should follow “Description”. Appropriate correction is required.

Claims 1-4, 6; 7-9, 11, 12; 13-15, 17; 18, 20-22; 23-28; 30-32, 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 7, 13, 18, 23, 30, note that it is unclear whether the subsequent recitation that a “thickness” is “greater than an average thickness of the coating material across the printed circuit board” can be properly consistent with the earlier recitation that the “thickness” is “at least half the thickness of the substrate ...”. That is to say, if the thickness is “at least half the thickness of the substrate”, can such a same thickness be also “greater than an average thickness of the coating material across the printed circuit board”? Clarification is needed.

In claim 2, note that the recitation “the dielectric coating varies ... in the same direction as ...” remains vague in meaning, even in light of the specification. Clarification is needed.

In claims 4, 18, note that it is unclear which of the “at least (two/a first) microstrip lines” is intended by the recitation of “at least one of the microstrip lines”. Clarification is needed.

In claim 18, note that it remains unclear, even in light of the specification, what characterizes “the average conformal coating thickness”.

The following claims have been found objectionable for reasons set forth below:

In claims 6, 12, 15, note that “has a dielectric constant” should be rephrased as --has the dielectric constant thereof-- for clarity of description.

In claim 18, line 5, note that “at least one” should be rephrased as --at least a first-- for consistency of description.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2; 13; 23-26, 28; 30, 32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by any one of Bruns, Maschotta and Anderson (all references of record).

Note that each reference discloses a printed circuit board arrangement, comprising: a dielectric substrate (4 in Bruns; 2 in Maschotta; 14 in Anderson); a plurality of microstrip lines (8, 10, 12 in Bruns; not numbered in Maschotta; 12 in Anderson) disposed on the substrate and a ground plane (2 in Bruns; 1 in Maschotta; 16 in Anderson) disposed on an opposed surface of the dielectric substrate; a dielectric coating (6 in Bruns; 3 in Maschotta; 14 in Anderson) disposed over each of the microstrip lines, where the dielectric coating thickness (the tables in figs. 3a, 3b of Bruns; 4 times the substrate thickness in Maschotta;  $t=5.4$  mils in Anderson) is clearly thicker than one half the thickness of the dielectric substrate. As described in each reference, the effect of the dielectric coating provides for reduced cross talk between the adjacent conductors (e.g. in the forward or far end of the conductors as discussed by the abstract of Anderson). Note that in each reference the dielectric coating is a “conformal coating” which inherently increases the thickness relative to “the average conformal coating”, as far as such a recitation can be understood.

Claims 6; 15; 27; 34 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by either Maschotta or Anderson (both references of record).

Note that each reference discloses that the dielectric coating is or can be the same as the dielectric material of the substrate. For example see the alternate embodiment in Maschotta and the common dielectric material (14) constituting the substrate and coating in Anderson.

Claim 14 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Maschotta (of record).

Maschotta discloses that the material of the dielectric substrate may be a cloth glass (i.e. fiberglass).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 4; 7-9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Bruns, Maschotta and Anderson in view of Forbes et al (all references of record).

The primary references disclose the claimed invention except for the explicit disclosure of driving and receiving circuitry including such circuitry being memory circuitry.

Forbes et al discloses in Fig. 9 thereof, a transmission line system (920) operatively connected between a driver (e.g. 910) and a receiver (930). Moreover, as described in the specification of Forbes et al (e.g. cols 4, 5), a preferred application of the Forbes et al transmission line system is for dynamic random access memory (i.e. DRAM).

Accordingly, it would have been obvious in view of the references, taken as a whole, to have similarly applied the transmission lines of any one of the primary references for use in driving and receiving circuitry for DRAM applications, such as taught by Forbes et al. Such a modification would have been considered an obvious substitution of art recognized transmission line structures, which would have provided the same signal transmission effect, thereby suggesting the obviousness of such a modification.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maschotta or Anderson in view of Forbes et al (all references of record).

As described in the preceding rejection, it would have been obvious to have applied the transmission line arrangement of either primary reference to a DRAM arrangement for the obvious reason stated therein. Moreover, note that Maschotta or Anderson provides for the dielectric material of the dielectric coating to be the same material as that of the dielectric substrate.

Claims 17; 18, 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruns, Maschotta or Anderson in view of Adachi (all references of record).

Note that each of the above primary references discloses the claimed invention, except for the recitation that the microstrip conductors provide reduced propagation delay.

Adachi provides an exemplary teaching of placing a dielectric layer over microstrip conductors, the resultant arrangement causes the “signal propagation to be improved in speed” (i.e. corresponding to a reduction in propagation delay) as described in the abstract thereof.

Accordingly, it would have been obvious in view of the reference, taken as a whole, to have realized that by placing dielectric layers over the microstrip conductors of any one of the

primary references, such transmission line structures obviously would have provided the function of reduced propagation delay, especially in view of the recognition thereof by Adachi.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maschotta or Anderson in view of Adachi (both references of record).

As described in the above rejection, Maschotta or Anderson discloses the substrate and the dielectric coating being the same material, and when combined with Adachi provides an arrangement, which obviously provides for reduced propagation delay.

Applicant's arguments filed 3 February 2006 have been fully considered but they are not persuasive.

Applicant has argued that in each one of the prior art references, the dielectric material over the transmission lines of the respective references is "lesser in thickness than the thickness of the dielectric material applied over the substrates elsewhere". Applicant further asserts that such an arrangement does not meet the limitation of the thickness being "greater than an average thickness of the conformal coating across the printed circuit board or substrate".

In response, it should be noted that in each of the prior art references, the dielectric material is of a respective thickness which is significantly greater than the thickness of the corresponding underlying substrate. Accordingly, it appears that such a greater thickness in the dielectric overlay corresponds to the overlay condition as disclosed by applicant's invention (e.g. fig. 6) and as such the overlay conditions of the prior art must necessarily meet the claimed average thickness, by virtue of the like configuration, as far as such a condition can be understood (see above paragraph 112 rejection regarding this issue).

Art Unit: 2817

Any inquiry concerning this communication should be directed to Benny Lee at  
telephone number 571 272 1764.

B. Lee

*Benny Lee*  
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PRIMARY EXAMINER  
ART UNIT 2817